

***A COMPARATIVE STUDY TO ASSESS THE OUTCOME AND  
COMPLICATIONS OF GRAHAMS OMENTAL PATCH CLOSURE VERSUS  
MODIFIED GRAHAMS OMENTAL PATCH CLOSURE IN PERFORATED  
DUODENAL ULCER AMONG PATIENTS ADMITTED IN GENERAL  
SURGERY DEPARTMENT,***

***GRH, MADURAI***

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**BRANCH I - GENERAL SURGERY**

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**Department of General Surgery**

**MADURAI MEDICAL COLLEGE AND GOVT RAJAJI HOSPITAL**

**Madurai – 20**



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## **INTRODUCTION**

Duodenal ulcer perforation is one of the manifestation of Peptic ulcer disease. Duodenal ulcer represent almost 2/3<sup>rd</sup> of all peptic ulcer diseases. Perforated duodenal ulcer remains a major health problem world wide. Peptic ulcer disease is primarily associated with H-pylori infection and excessive use of NSAIDs. Since the burden of peptic ulcer disease and its complications are significant worldwide, it is important to conduct a study based on peptic ulcer disease.

Life prevalence of duodenal ulcer has found to be 11-14% for males and 8-10% for women . Male to female ratio of duodenal ulcer have reduced from 10:1 to 1.5:1.

Duodenal ulcer have been characterized by the presence of a well demarcated break in the mucosa that may extend into muscularis propriya of the duodenum.

Duodenal perforation is the second most common complication of PUD and occurs in as many as 10% of patients with PUD

My study compares the outcome and complications of two surgical procedures done for perforated duodenal ulcer namely GRAHAMS OMENTAL PATCH REPAIR and MODIFIED GRAHAMS OMENTAL PATCH CLOSURE.

## **AIMS AND OBJECTIVES**

### **AIM**

The aim of this study is to compare outcome and complications of GRAHAM'S OMENTAL PATCH CLOSURE versus MODIFIED GRAHAM'S OMENTAL PATCH CLOSURE for treating perforated duodenal ulcers.

### **OBJECTIVES**

To compare outcome and complications of GRAHAM'S OMENTAL PATCH CLOSURE versus MODIFIED GRAHAM'S OMENTAL PATCH closure for treating perforated duodenal ulcers

## **STUDY DESIGN**

### **PERIOD OF STUDY:**

6 months ( April 2018– September 2018)

### **COLLABORATING DEPARTMENT:**

None

### **PLACE OF STUDY:**

Government Rajaji Hospital,Madurai.

### **SELECTION OF STUDY SUBJECTS :**

All patients diagnosed with peritonitis secondary to hollow viscus perforation who are willing for definitive surgery.

### **SAMPLE SIZE:**

60 patients

### **DATA COLLECTION:**

Data regarding history, clinical examination,laboratory values & postoperative analysis.

### **METHODS:**

Prospective comparitative study.

**ETHICAL CLEARANCE:**

Approved by the Institute of Ethical Committee, Madurai Medical College.

**CONSENT :**

Informed and written consent from all patients

**ANALYSIS:**

Data analysis was done with the help of computer using SPSS 16 and Sigma Stat 3.5 version.

Using this software range, frequencies, percentages, means, standard deviations, chi square and 'p' values were calculated by One way ANOVA and Chi-square test was used to test the significance of difference between quantitative variables.

**CONFLICT OF INTEREST:**

None

**FINANCIAL SUPPORT :**

Nil from the institution

## **ELIGIBILITY CRITERIA:**

### **A.INCLUSION CRITERIA:**

All patients with perforated duodenal ulcer size < 20 mm who are admitted in general surgery department GRH, Madurai.

### **B.EXCLUSION CRITERIA:**

Duodenal perforation of other origin such as traumatic and neoplasia.

Large duodenal perforation >20 mm

Posterior duodenal perforation

Sealed duodenal perforation

Patient who expired before definitive surgery.

Patient not willing for definitive surgery

Patient not willing for the study

## **MATERIALS AND METHODS**

### **AIM:**

The aim of this study is to compare outcome and complications of Graham's omental patch closure versus Modified Graham's omental patch closure for treating perforated duodenal ulcers.

### **MATERIALS USED:**

Proforma containing patient history, clinical examination ,Informed consent forms.

### **METHODOLOGY:**

After obtaining clearance and approval from the institutional ethical committee and patients fulfilling the inclusion / exclusion criteria were included in the study after obtaining informed consent.

- Patients admitted in surgery department who are diagnosed with perforated duodenal ulcer are grouped into group 1 and group 2.
- Non probability purposive sampling technique was used to allocate the subjects into group 1(Grahams omental patch closure )and group 2 (Modified Graham's omental patch closure).
- Initial preoperative work up and resuscitation with intravenous fluids, antibiotics, analgesics, nasogastric decompression was done in all the cases.

- **GRAHAMS OMENTAL PATCH REPAIR**

- Under ETGA, under strict aseptic precautions, parts painted and draped.
- Midline laparotomy incision made. Incision deepened
- Peritoneal cavity opened
- After confirming the diagnosis of perforation , suctioning of peritoneal toxic fluid done.
- After laparotomy, packs are placed around the perforation to contain any further spill.
- . Three or four sutures are used preferably of non absorbable material. If the needle is introduced, with care being taken to avoid the posterior duodenal mucosa and the needle is passed parallel to the anterior wall of duodenum
- .Before sutures are tied, the adjacent omentum is brought up to the perforation with the sutures untied and laid out on the anterior surface of the duodenum.
- Sutures are then successively tied from the superior to inferior side, so as to tampon the perforation with the vascularised omental pedicle graft.
- Care should be exercised to be sure that the suture are tied sufficiently snugly to hold the omentum in place, but the tension exerted by the tied suture on the omentum should be such that the blood supply to the omentum is not impaired.
- The patch must be a living omental patch, and the omentum should not be strangulated

**Modified Graham patch repair (MGPR)**

- Under ETGA, under strict aseptic precautions, parts painted and draped.



- Midline laparotomy incision made. Incision deepened
- Peritoneal cavity opened
- After confirming the diagnosis of perforation , suctioning of peritoneal toxic fluid done
- Packs are placed around the perforation to contain any further spill. .
- Three or four sutures are used preferably of non absorbable material. If the needle is introduced, with care being taken to avoid the posterior duodenal mucosa and the needle is passed parallel to the anterior wall of duodenum
- In this surgery, the three or four sutures are placed as shown in picture and are then tied to close the ulcer
- The omental patch placed on the tied suture, and another set of knots are tied to hold the omentum in place over the duodenal perforation closure.
- Further resuscitation and ICU care was continued as and when necessary
- Assessment of patients 48 hrs after surgery & Postoperative complications.
- Outcome of the study was evaluated.

## **POSTOPERATIVE ANALYSIS**

### **► Assessment of patients 48 hrs after surgery**

- Pulse rate
- Systolic BP
- Diastolic BP

- Temperature
- Respiratory rate
- spO2

► **Postoperative complications**

- Surgical site infection
- Return of bowel function
- Duration of ventilatory support
- Duration of hospital stay
- Death

To determine and compare the accuracy of the MPI score and WSES prognostic score in predicting mortality,

The information collected regarding all the selected cases were recorded in a Master Chart. Data analysis was done with the help of computer using SPSS 16 and Sigma Stat 3.5 version.

Using this software range, frequencies, percentages, means, standard deviations, chi square and 'p' values were calculated by One way ANOVA and Chi-square test was used to test the significance of difference between quantitative variables.

**A 'p' value less than 0.05 is taken to denote significant relationship.**

## COMPARISON CHART OF GOP AND MGOP IN VARIOUS PARAMETERS

Duration of surgery in hrs	Average	1.6 SD(22.313)	1.883333 SD(21.503)
Death	Number	4	4
Hospital stay	Average	9.9 SD(20.5601)	8.46667 SD(19.7625)
Days of ventilator support	Average	0.36667 SD(3.5382)	0.43333 SD(3.3907)
	SHT	3	4
Comorbidity	DIABETIC	7	2
	Metabolic Abnormality	2	2
Complication	Surgical site infection	8	6
	PERTONITIS INDEX	Average	4.166667 SD(3.806)
RETURN OF BOWEL ACTIVITIES	Average	3.4333333 3 SD(1.2544)	3.9666666 7 SD(3.0454)
NSAID ABUSE	Number	5	4
Smoking alcohol	Number	21	20
Duration of symps	Average	2.033333 SD(0.8899)	1.366667 SD(0.8088)
female	%	2	7
Age	Average	40.7 SD(15.020)	40.83 SD(23.181)
sample	Number	30	30
Type of surgery		GOPR	MGOPR

## DISCUSSION

In our study we included 60 patients.

30 patients were under group 1 (GRAHAMS OMENTAL PATCH REPAIR) and 30 patients under group 2 (MODIFIED GRAHAMS OMENTAL PATCH REPAIR).

Age distribution of the patients affected ranged from 13-70 years in the present study.

The maximum number of cases studied were in the age group of 31 to 40(25%) .

In group 1 mean age was 40.7 (SD – 15.020). In group 2 the mean age was 40.83 (SD- 23.181). the two tailed P value equals 0.9795. this difference is considered to be statistically not significant.

Most of the patients were males ( males 51%). Male female ratio was 51:9.

Comparing the two groups chi square statistics is 3.268. the p value is 0.70645. this result is not significant at  $p < 0.05$ .

Majority of patients presented with symptoms of abdominal pain for 1 to 2 days.  
(mean days of presentation- 1.68 days)

9 out of 60 patients were diabetic, 3 out of 60 patients were hypertensive.

41 patients out of 60 patients studied had history of smoking ( 68.3%)

9 out of 60 patients had history of NSAID abuse (15%).

The mean duration of ventilator support was 0.3667 days in group 1 and 0.43333 days in group 2.

Comparing the two groups the two tailed p value is 0.9409. this result is not statistically significant at  $p < 0.05$ .

Patients in group 1 have return of bowel activity in an average of 3.43 days.

Patients in group 1 have return of bowel activity in an average of 3.966 days.

Comparing the two groups the two tailed p value is 0.3788. this result is not statistically significant at  $p < 0.05$ .

8 out of 30 patients in group 1 developed surgical site infection, while 6 out of 30 patients in group 2 developed surgical site infection.

Comparing the two groups chi square statistics is 0.3727 the p value is 0.541552. This result is not statistically significant at  $p < 0.05$ .

2 out of 30 patients in group 1 developed metabolic abnormalities post operatively .

2 out of 30 patients in group 2 developed metabolic abnormalities post operatively

Comparing the two groups chi square statistics is 0 .the p value is 1 . This result is not statistically significant at  $p < 0.05$ .

Average days of hospital stay in group 1 is 9.9 days

Average days of hospital stay in group 2 is 8.46 days

Comparing the two groups.the two tailed p value is 0.7840 . This result is not statistically significant at  $p < 0.05$ .

4 out of 30 patients in group 1 died during hospital stay.

4 out of 30 patients in group 2 died during hospital stay.

Comparing the two groups chi square statistics is 0 .the p value is 1 . This result is not statistically significant at  $p < 0.05$ .

## **CONCLUSION**

The outcome and complication of both surgeries for perforated duodenal ulcer , that is GRAHAMS OMENTAL PATCH REPAIR and MODIFIED GRAHAMS OMENTAL PATCH REPAIR are independent of the method of surgery done.

Thus it is the surgeons choice to select one of the two methods. The major contributing factor for outcome and complication of surgery are the age, day of presentation, peritonitis index and comorbidities of patient rather than the type of surgery done.

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## **ABBREVIATIONS**

SSIs - Surgical site infections

WSES - World Society of Emergency Surgery

GOPR-Grahams omental patch repair

MGOPR-Modified Grahams omental patch repair